REMARKS

This responds to the Office Action dated May 1, 2006.

Claims 1, 3, 7, 19, and 25 are amended, claims 4 and 15 are canceled; as a result, claims 1-3, 5-14, and 16-29 are now pending in this application. Support for the amendments is found generally within the specification. See for example, page 3 lines 15-18, page 13 lines 25-27, and page 14 lines 14-20.

Objections to the Claims

The Office Action objected to claims 1- 6 because, in claim 1, the recitation "for performing" is not a positive limitation. Claim 1 was amended to remove the "for performing" language from the preamble.

The Office Action objected to claims 7-18 because of various recitations. Applicant respectfully traverses the objections. The various recitations in the claims include means for performing a function. For example, the Office objected to the "for receiving" of claim 7 that is part of the "means for receiving an OFDM symbol" recitation in third line of the claim. 35 U.S.C. § 112 ¶ 6 states that an element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof. Therefore, the various recitations of means for performing a specified function are a proper claim element.

The Office objected to claims 25-29 because, in claim 25, the recitation "for implementing" is not a positive limitation. Claim 25 was amended to remove the "for implementing" language from the preamble.

Applicant respectfully requests reconsideration and allowance of claims 1-3, 5-14, 16-18, and 25-29.

§102 Rejection of the Claims

Claims 1-29 were rejected under 35 USC § 102(e) as being anticipated by Kadous (U.S. 2001/0036235 A1). Applicant respectfully traverses the rejection. The Office Action fails

to establish a *prima facie* case of anticipation because Kadous does not teach or suggest all of the

elements recited or incorporated into the claims.

Regarding claims 1-3, 5-6 and 25-29:

Applicant cannot find in Kadous any teaching of, among other things, a method

comprising,

identifying subcarriers of interest, wherein the subcarriers of interest are a subset
of the plurality of data subcarriers and are assigned to a user terminal, generating
a pilot vector using a subset of pilot symbols from said OFDM symbol, and
obtaining a first interpolation vector corresponding to a first subcarrier of interest,
the first interpolation vector selected from a plurality of stored interpolation
vectors corresponding to each subcarrier of interest assigned to the user terminal,

as presently recited in claim 1 and incorporated into claims 2, 3, 5 and 6, or a computer

readable medium with instructions for,

determining a set of subcarriers of interest from an OFDM symbol having a
plurality of data subcarriers and a plurality of pilot symbols, wherein the set of
subcarriers of interest is assigned to a user terminal and is a subset of the plurality
of data subcarriers, forming a pilot vector using a subset of pilot symbols from the
OFDM symbol, obtaining a first interpolation vector corresponding to a first
subcarrier of interest selected from a plurality of stored interpolation vectors
corresponding to each subcarrier of interest for the user terminal,

as presently recited in claim 25 and incorporated into claims 26-29.

Kadous does not disclose "identifying subcarriers of interest, wherein the subcarriers

of interest … are assigned to a user terminal" as recited in claim 1 or, "determining a set of

subcarriers of interest … wherein the set of subcarriers of interest is assigned to a user

terminal" as recited in claim 25. The Office Action reads decoupling "the LS channel

estimate for each channel received over a separate antenna if more than one antenna is being

used, i.e., over each of a plurality of antennas" in Kadous onto the claim elements.[1] Thus,

even if Applicant did acquiesce that decoupling the LS channel estimate in Kadous does read

on identifying subcarriers of interest, Kadous decouples the LS channel estimate according to

each transmitting antenna rather than according to a user terminal.

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[1] Office Action, pg. 4.

Additionally, Kadous does not disclose "generating a pilot vector using a subset of pilot symbols" as recited in claim 1, or "forming a pilot vector using a subset of pilot symbols" as recited in claim 25. The Office Action reads determining "the least square channel estimate … by performing division on the training sequence" in Kadous onto the claim element.[2] However, this does not contain any disclosure of "using a subset of pilot symbols," and there is no indication that the determining in Kadous uses pilot symbols.

Further, Kadous does not disclose "obtaining a first interpolation vector … selected from a plurality of stored interpolation vectors corresponding to each subcarrier of interest for the user terminal" as recited in claims 1 and 25. Kadous states that "[t]he values of the interpolation coefficients can then be determined,"[3] and that "[i]t is to be noted again that the same coefficients are to be used every burst, so the coefficient interpolator and channel estimator 60 need not calculate M (and hence the inverse of the NXN matrix) every burst."[4] The Office Action asserts that this implies that the interpolator coefficients are stored.[5] However, even if the assertion was correct, it still does not imply that a plurality of interpolator vectors are stored corresponding to each subcarrier of interest for the user terminal.

Regarding claim 7-18:

Applicant cannot find in Kadous any teaching of, among other things, a device comprising,

> means for extracting a group of pilot symbols from said OFDM symbol to form a pilot vector using a subset of the pilot symbols, and means for acquiring a stored interpolation vector associated with a first subcarrier of interest selected from a plurality of stored interpolation vectors corresponding to each subcarrier of interest for a user terminal, wherein the first subcarrier of interest is a subset of the plurality of subcarriers, and wherein a subcarrier of interest is a subcarrier assigned to a user terminal,

as presently recited in claim 7 and incorporated into claims 8-14, 16-18.

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[2] Office Action, pg. 5.
[3] Kadous, ¶ 0068.
[4] Id.
[5] Office Action, pg. 6, last ¶.

Kadous does not disclose "wherein a subcarrier of interest is a subcarrier assigned to a user terminal" as recited in claim 7. The Office Action reads decoupling "the LS channel estimate for each channel received over a separate antenna if more than one antenna is being used, i.e., over each of a plurality of antennas" in Kadous onto the claim element.[6] Thus, even if Applicant did acquiesce that decoupling the LS channel estimate in Kadous does read on identifying subcarriers of interest, Kadous decouples the LS channel estimate according to each transmitting antenna rather than according to a user terminal.

Additionally, Kadous does not disclose "extracting a group of pilot symbols from said OFDM symbol to form a pilot vector using a subset of the pilot symbols." The Office Action reads determining "the least square channel estimate … by performing division on the training sequence" in Kadous onto the claim element.[7] However, this does not contain any disclosure of "using a subset of pilot symbols."

Further, Kadous does not disclose "acquiring a stored interpolation vector … selected from a plurality of stored interpolation vectors corresponding to each subcarrier of interest for a user terminal." Kadous states that "[t]he values of the interpolation coefficients can then be determined,"[8] and that "[i]t is to be noted again that the same coefficients are to be used every burst, so the coefficient interpolator and channel estimator 60 need not calculate M (and hence the inverse of the NXN matrix) every burst."[9] The Office Action asserts that this implies that the interpolator coefficients are stored.[10] However, even if the assertion was correct, it still does not imply that a plurality of interpolator vectors are stored corresponding to each subcarrier of interest for a user terminal.

Regarding claims 19-24:

Applicant cannot find in Kadous any teaching of, among other things, a device comprising,

a subcarrier tracking unit to track subcarriers of interest, wherein the subcarriers of interest are assigned to a user terminal and are a subset of the plurality of subcarriers, a pilot vector unit to assemble a pilot vector using a subset of pilot symbols from the OFDM symbol, and an interpolation vector retrieval unit to

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[6] Office Action, pg. 4.
[7] Office Action, pg. 5.
[8] Kadous, ¶ 0068.
[9] Id.
[10] Office Action, pg. 6, last ¶.

retrieve an interpolation vector for each of said subcarriers of interest from a
plurality of interpolation vectors stored in a memory,

as presently recited in claim 19 and incorporated into claims 20-24.

Kadous does not disclose "a subcarrier tracking unit to track subcarriers of interest,
wherein the subcarriers of interest are assigned to a user terminal and are a subset of the
plurality of subcarriers" as recited in claim 19. The Office Action reads decoupling "the LS
channel estimate for each channel received over a separate antenna if more than one antenna
is being used, i.e., over each of a plurality of antennas" in Kadous onto the claim element.[11]
Thus, even if Applicant did acquiesce that decoupling the LS channel estimate in Kadous
does read on identifying subcarriers of interest, Kadous decouples the LS channel estimate
according to each transmitting antenna rather than according to a user terminal.

Additionally, Kadous does not disclose "a pilot vector unit to assemble a pilot vector
using a subset of pilot symbols from the OFDM symbol." The Office Action reads
determining the least square channel estimate by performing division on the training
sequence in Kadous onto the claim element.[12] However, this does not contain any disclosure
of using a subset of pilot symbols when assembling a pilot vector.

Further, Kadous does not disclose "an interpolation vector retrieval unit to retrieve an
interpolation vector for each of said subcarriers of interest from a plurality of interpolation
vectors stored in a memory." Kadous states that "[t]he values of the interpolation
coefficients can then be determined,"[13] and that "[i]t is to be noted again that the same
coefficients are to be used every burst, so the coefficient interpolator and channel estimator
60 need not calculate M (and hence the inverse of the NXN matrix) every burst."[14] The
Office Action asserts that this implies that the interpolator coefficients are stored.[15]
However, even if the assertion was correct, it does not imply that a plurality of interpolation
vectors are stored in a memory.

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[11] Office Action, pg. 4.
[12] Office Action, pg 5.
[13] Kadous, ¶ 0068.
[14] Id.
[15] Office Action, pg. 6, last ¶.

Applicant respectfully requests reconsideration and allowance of claims 1-3, 5-14,

16-29.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and

notification to that effect is earnestly requested. The Examiner is invited to telephone

Applicant's attorney ((612) 349-9592) to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account

No. 19-0743.

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Amy moriarty

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